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**1. Control design of an automated highway system**

Horowitz, R.; Varaiya, P.;

[Proceedings of the IEEE](#)

Volume 88, Issue 7, July 2000 Page(s):913 - 925

Digital Object Identifier 10.1109/5.871301

**Summary:** Describes the design of an automated highway system (AHS) developed over past ten years in the California PATH program. The AHS is a large, complex system in which vehicles are automatically controlled. The design and implementation of the AHS[AbstractPlus](#) | [References](#) | Full Text: [PDF\(380 KB\)](#) [IEEE JNL](#)  
[Rights and Permissions](#)**2. Modeling of driver's collision avoidance maneuver based on controller switching model**

Jong-Hae Kim; Hayakawa, S.; Suzuki, T.; Hayashi, K.; Okuma, S.; Tsuchida, N.

Kido, S.;

[Systems, Man and Cybernetics, Part B, IEEE Transactions on](#)

Volume 35, Issue 6, Dec. 2005 Page(s):1131 - 1143

Digital Object Identifier 10.1109/TSMCB.2005.850168

**Summary:** This paper presents a modeling strategy of human driving behavior based on controller switching model focusing on the driver's collision avoidance maneuver. The data are collected by using the three-dimensional (3-D) driving simulator based on the[AbstractPlus](#) | Full Text: [PDF\(2024 KB\)](#) [IEEE JNL](#)  
[Rights and Permissions](#)**3. On spacing policies for highway vehicle automation**

Santhanakrishnan, K.; Rajamani, R.;

[Intelligent Transportation Systems, IEEE Transactions on](#)

Volume 4, Issue 4, Dec. 2003 Page(s):198 - 204

Digital Object Identifier 10.1109/TITS.2003.821341

**Summary:** This paper develops a framework for the design and evaluation of spacing policies for adaptive cruise control. Spacing policies are evaluated from the point of view of stability, traffic flow stability and traffic flow capacity. The standard c.....[AbstractPlus](#) | [References](#) | Full Text: [PDF\(418 KB\)](#) [IEEE JNL](#)  
[Rights and Permissions](#)**4. Longitudinal control with time delay in platooning**

Huang, S.; Ren, W.;

[Control Theory and Applications, IEE Proceedings-](#)

Volume 145, Issue 2, March 1998 Page(s):211 - 217

**Summary:** We consider the control design problem of vehicle following system with time delay in platooning. The system consists of two parts: a leader vehicle and a follower vehicle. The leader vehicle is controlled by a desired velocity profile, and the follower vehicle follows the leader vehicle with a fixed time delay. The control objective is to maintain the desired velocity profile of the leader vehicle while minimizing the tracking error of the follower vehicle. The control design is based on the linear quadratic Gaussian (LQG) method, which is a well-known optimal control method for systems with time delay. The LQG method involves solving a Riccati equation and a linear matrix inequality (LMI) to find the optimal control gains. The resulting control law is implemented on the follower vehicle, and the performance of the system is evaluated through simulations. The results show that the proposed control scheme is able to track the desired velocity profile of the leader vehicle with high accuracy, even in the presence of time delay. The control design is also robust to changes in the leader vehicle's velocity profile and the follower vehicle's parameters. The results indicate that the proposed control scheme is effective for longitudinal control of platooning vehicles with time delay.

delays. An upper bound for the time delays is constructed to guarantee the stability. Several conditions are presented to meet the requirements of el....

[AbstractPlus](#) | Full Text: [PDF\(564 KB\)](#) IET JNL

- 5. The system and the function of position regulated speed control device**  
Nishiyama, Y.; Kondoh, A.; Hirado, A.; Akiyama, H.;  
[Vehicle Navigation and Information Systems Conference, 1996. VNIS '96](#)  
Volume 7, 14-18 Oct. 1996 Page(s):288 - 294  
**Summary:** A Position regulated Speed Control device (PSC) derived from a conventional speed control device, reduces the tasks of drivers in highway driving and is especially effective in preventing rear-end collisions. The PSC can recognize the preceding vehicle's speed and...
- [AbstractPlus](#) | Full Text: [PDF\(92 KB\)](#) IEEE CNF  
[Rights and Permissions](#)
- 6. Longitudinal and Lateral Fuzzy Control Systems Design for Intelligent Vehicle-Highway Systems**  
Hsin-Han Chiang; Li-Shan Ma; Jau-Woei Perng; Bing-Fei Wu; Tsu-Tian Lee;  
[Networking, Sensing and Control, 2006. ICNSC '06. Proceedings of the 2006 International Conference on](#)  
23-25 April 2006 Page(s):544 - 549  
**Summary:** In this paper, the longitudinal and lateral fuzzy control vehicle systems are considered separately due to the decoupling under the assumption of small vehicle steering angle. Firstly, the problem of longitudinal control system design is....
- [AbstractPlus](#) | Full Text: [PDF\(496 KB\)](#) IEEE CNF  
[Rights and Permissions](#)
- 7. A velocity control strategy for vehicular collision avoidance system**  
Mingyuan Bian; Keqiang Li; Dafeng Jin; Xiaomin Lian;  
[Mechatronics and Automation, 2005 IEEE International Conference](#)  
Volume 4, 29 July-1 Aug. 2005 Page(s):1827 - 1830 Vol. 4  
**Summary:** A novel strategy on vehicular velocity controlling was proposed to reduce the demands of collision avoidance and best following performances, which aims to improve traffic safety and improve the transportation efficiency. Unlike the strategy used in...
- [AbstractPlus](#) | Full Text: [PDF\(156 KB\)](#) IEEE CNF  
[Rights and Permissions](#)
- 8. Modeling and Recognition of Human Driving Behavior based on Stochastic ARX model**  
Suzuki, T.; Sekizawa, S.; Inagaki, S.; Hayakawa, S.; Tsuchida, N.; Tsuda, T.; Fukuda, T.;  
[Decision and Control, 2005 and 2005 European Control Conference. CDC-ECC'05. Proceedings of the 2005 Conference on](#)  
12-15 Dec. 2005 Page(s):5095 - 5100  
**Summary:** This paper presents a development of the modeling of the human driving behavior based on the expression as Stochastic Switched ARX model (SS-ARX) focusing on the collision avoidance behavior. First, the parameter estimation technique for...
- [AbstractPlus](#) | Full Text: [PDF\(752 KB\)](#) IEEE CNF  
[Rights and Permissions](#)
- 9. Longitudinal road gradient estimation using vehicle CAN bus data**  
Mangan, S.; Wang, J.; Wu, Q.;  
[Systems, Man and Cybernetics, 2003. IEEE International Conference on](#)  
Volume 3, 5-8 Oct. 2003 Page(s):2336 - 2341 vol.3  
**Summary:** Knowledge of the longitudinal road gradient can be used by Advanced Driver Assistance Systems (ADAS), Adaptive Cruise Control (ACC) and automatic transmission control systems to provide more accurate velocity control. This paper presents a method of estimating the longitudinal road gradient.
- [AbstractPlus](#) | Full Text: [PDF\(499 KB\)](#) IEEE CNF  
[Rights and Permissions](#)
- 10. Distributed hybrid controls for automated vehicle lane changes**  
Godbole, D.N.; Sengupta, R.; Hagenmeyer, V.;  
[Decision and Control, 1998. Proceedings of the 37th IEEE Conference on](#)

Volume 3, 16-18 Dec. 1998 Page(s):2639 - 2644 vol.3

Digital Object Identifier 10.1109/CDC.1998.757851

**Summary:** We present a methodology for designing safe and efficient lane changing for automated vehicles. Our aim is to obtain a coordinated decentralized control such that individual vehicles can execute it with minimal coordination. We characterize the problem by defining a set of constraints and a set of performance measures.

[AbstractPlus](#) | Full Text: [PDF\(508 KB\)](#) IEEE CNF  
[Rights and Permissions](#)

**11. Robust performance for autonomous intelligent cruise control systems**

Mayr, R.;

[Decision and Control, 1998. Proceedings of the 37th IEEE Conference on](#)

Volume 1, 16-18 Dec. 1998 Page(s):487 - 492 vol.1

Digital Object Identifier 10.1109/CDC.1998.760724

**Summary:** In the last years many efforts for improving safety and comfort in vehicles have been taken. One important aspect of automation components in future traffic is the design of autonomous intelligent cruise control systems. Based on the fe....

[AbstractPlus](#) | Full Text: [PDF\(476 KB\)](#) IEEE CNF  
[Rights and Permissions](#)

**12. Evaluation of mixed semi-automated/manual traffic**

Bose, A.; Ioannou, P.;

[Control Applications, 1998. Proceedings of the 1998 IEEE International Conference on](#)

Volume 2, 1-4 Sept. 1998 Page(s):868 - 872 vol.2

Digital Object Identifier 10.1109/CCA.1998.721582

**Summary:** The advance in research and development will make the deployment of vehicles a reality in the near future. At the initial stage, semi-automated vehicle capability to follow each other automatically in the same lane will coexist with manual drivers.

[AbstractPlus](#) | Full Text: [PDF\(444 KB\)](#) IEEE CNF  
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